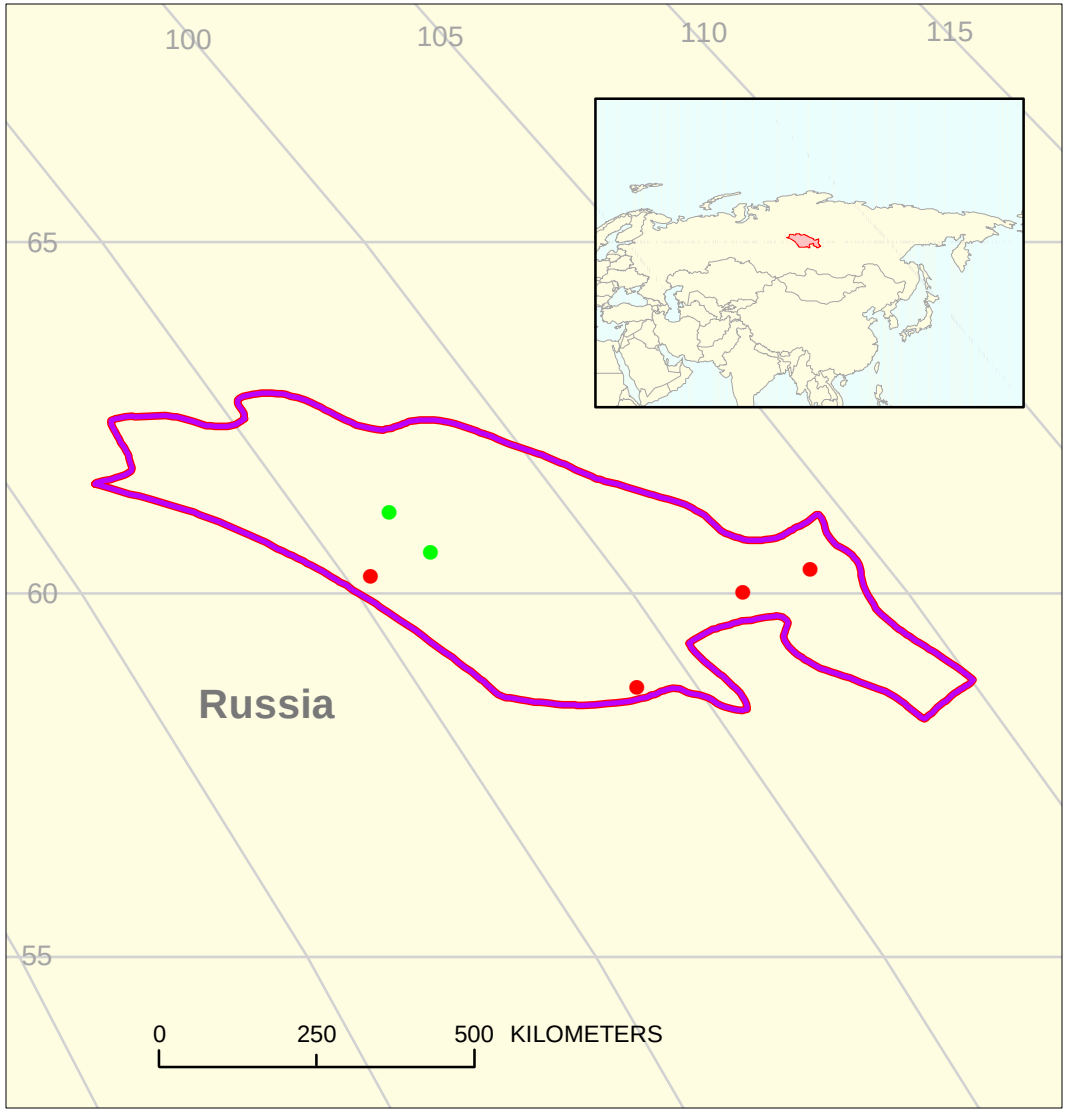
Go to Table of Contents

Go to index map

# Yenisey Foldbelt Riphean-Craton Margin Riphean Assessment Unit 12070101




Yenisey Foldbelt Riphean-Craton Margin Riphean Assessment Unit 12070101

Baykit Arch Geologic Province 1207

Geologic Summary

Detailed map of this assessment unit

Assessment Input Data

Assessment Results

- Assessment Unit Summary
- Detailed Assessment Results
- Undiscovered Field-Size Distributions

**USGS PROVINCE:** Baykit Arch (1207) **GEOLOGIST:** G.F. Ulmishek

**TOTAL PETROLEUM SYSTEM:** Yenisey Foldbelt Riphean-Craton Margin Riphean (120701)

**ASSESSMENT UNIT:** Same as petroleum system (12070101)

**DESCRIRTION:** Assessment unit encompasses the entire province that is a regional Baykit high on the southwest of the Siberian craton.

**SOURCE ROCKS:** Source rocks are absent from the province area. Hydrocarbons supposedly migrated from abundant, presently metamorphosed Riphean age source rocks in the adjacent Yenisey foldbelt and possibly from a Riphean rift to the south of the high.

**MATURATION:** Source rocks had reached maturation before they were deformed and metamorphosed in the foldbelt that occurred between Riphean and Vendian time (~700 Ma). In the foredeep, maturation could have continued into the Silurian.

**MIGRATION:** Migration could have started in the late Riphean, but most or all of presently entrapped hydrocarbons migrated after the Early Cambrian and before the Devonian.

**RESERVOIR ROCKS:** Principal reservoir rocks are Riphean vuggy dolomites below pre-Vendian unconformity. Potential reservoirs are also Vendian-Lower Cambrian clastic and carbonate rocks.

**TRAPS:** Traps are local uplifts and reservoir up-dip pinch out against basement highs.

**SEALS:** Known pools are directly sealed by Vendian clastics, but the principal regional seal is thick Lower Cambrian salt.

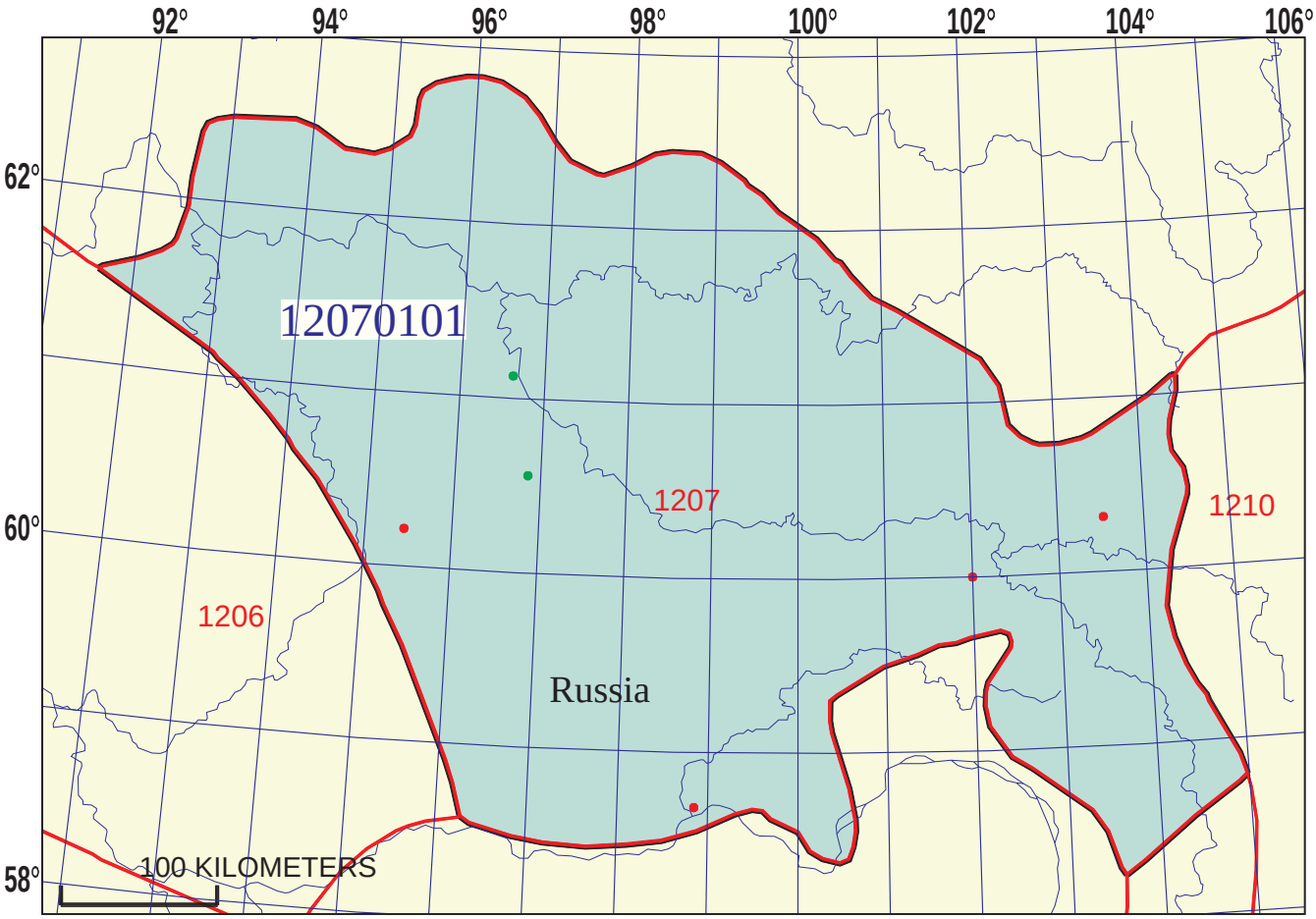
**REFERENCES:**

Kontorovich, A.E., ed., 1994, Petroleum basins and regions of Siberia, v. 6, Baykit region (Neftegazonosnye basseyny i regiony Sibiri, v. 6, Baykitskiy region): Novosibirsk, OIGGM SO RAN, 54 p.

Kontorovich, A.E., Izosimova, A.N., Kontorovich, A.A., Khabarov, E.M., and Timishina, I.D., 1996, Geologic structure and conditions of formation of the giant Yurubchen-Tokhoma zone of oil and gas accumulation in the Upper Proterozoic of the Siberian platform: Geologiya i Geofizika, v. 37, no. 8, p. 166-195.

Kuznetsov, V.G., 1997, Riphean hydrocarbon reservoirs of the Yurubchen-Tokhom zone, Lena-Tunguska province, NE Russia: Journal of Petroleum Geology, v. 20, no. 4, p. 459-474.

Surkov, V.S., Korobeynikov, V.P., Krylov, S.V., Grishin, M.P., Kraevsky, B.G., and Larichev, A.I., 1996, Geodynamic and sedimentary conditions of formation of the Riphean petroliferous complexes on the western margin of the Siberian paleocontinent: Geologiya i Geofizika, v. 37, no. 8, p. 154-165.




# Yenisey Foldbelt Riphean-Craton Margin Riphean Assessment Unit - 12070101

EXPLANATION

- Hydrography
- Shoreline
- 1207 Geologic province code and boundary
- Country boundary
- Gas field centerpoint
- Oil field centerpoint
- 12070101 Assessment unit code and boundary

Projection: Equidistant Conic. Central meridian: 100. Standard Parallel: 58 30

**SEVENTH APPROXIMATION**
**NEW MILLENNIUM WORLD PETROLEUM ASSESSMENT**
**DATA FORM FOR CONVENTIONAL ASSESSMENT UNITS**

| | | | |
|---|---|---|---|
| Date:…….. | 3/31/99 | | |
| Assessment Geologist:…….. | G.F. Ulmishek | | |
| Region:…….. | Former Soviet Union | Number: | 1 |
| Province:…….. | Baykit Arch | Number: | 1207 |
| Priority or Boutique…… | Boutique | | |
| Total Petroleum System:…… | Yenisey Foldbelt Riphean-Craton Margin Riphean | Number: | 120701 |
| Assessment Unit:…….. | Yenisey Foldbelt Riphean-Craton Margin Riphean | Number: | 12070101 |
| * Notes from Assessor | Petroleum potential is poorly understood and no analogs exist in the world. This assessment unit contains a super-giant field, Yurubchen-Tokhom, with no size given. | | |

**CHARACTERISTICS OF ASSESSMENT UNIT**

Oil (<20,000 cfg/bo overall) **or** Gas (≥20,000 cfg/bo overall):… Oil

What is the minimum field size?……. 5 mmboe grown (≥1mmboe)
(the smallest field that has potential to be added to reserves in the next 30 years)

Number of discovered fields exceeding minimum size:…… Oil: 1 Gas: 2

| Established (>13 fields) | | Frontier (1-13 fields) | X | Hypothetical (no fields) | |
|---|---|---|---|---|---|

Median size (grown) of discovered oil fields (mmboe):

| 1st 3rd | NA | 2nd 3rd | NA | 3rd 3rd | NA |
|---|---|---|---|---|---|

Median size (grown) of discovered gas fields (bcfg):

| 1st 3rd | NA | 2nd 3rd | NA | 3rd 3rd | NA |
|---|---|---|---|---|---|

**Assessment-Unit Probabilities:**

| Attribute | Probability of occurrence (0-1.0) |
|---|---|
| 1. **CHARGE:** Adequate petroleum charge for an undiscovered field ≥ minimum size…… | 1.0 |
| 2. **ROCKS:** Adequate reservoirs, traps, and seals for an undiscovered field ≥ minimum size…… | 1.0 |
| 3. **TIMING OF GEOLOGIC EVENTS:** Favorable timing for an undiscovered field ≥ minimum size | 1.0 |

***Assessment-Unit GEOLOGIC Probability*** (Product of 1, 2, and 3):…….. 1.0

4. **ACCESSIBILITY:** Adequate location to allow exploration for an undiscovered field ≥ minimum size…… 1.0

**UNDISCOVERED FIELDS**

**Number of Undiscovered Fields:** How many undiscovered fields exist that are ≥ minimum size?:
(uncertainty of fixed but unknown values)

| | | | | | |
|---|---|---|---|---|---|
| Oil fields:……min. no. (>0) | 3 | median no. | 20 | max no. | 60 |
| Gas fields:……min. no. (>0) | 3 | median no. | 30 | max no. | 95 |

**Size of Undiscovered Fields:** What are the anticipated sizes (**grown**) of the above fields?:
(variations in the sizes of undiscovered fields)

| | | | | | |
|---|---|---|---|---|---|
| Oil in oil fields (mmbo)……min. size | 5 | median size | 20 | max. size | 2000 |
| Gas in gas fields (bcfg):……min. size | 30 | median size | 120 | max. size | 12000 |

Assessment Unit (name, no.)
Yenisey Foldbelt Riphean-Craton Margin Riphean, 12070101

## AVERAGE RATIOS FOR UNDISCOVERED FIELDS, TO ASSESS COPRODUCTS

(uncertainty of fixed but unknown values)

| Oil Fields: | minimum | median | maximum |
|---|---|---|---|
| Gas/oil ratio (cfg/bo)…… | 2500 | 5000 | 7500 |
| NGL/gas ratio (bngl/mmcfg)…… | 30 | 60 | 90 |

| Gas fields: | minimum | median | maximum |
|---|---|---|---|
| Liquids/gas ratio (bngl/mmcfg)…… | 25 | 45 | 65 |
| Oil/gas ratio (bo/mmcfg)…… | | | |

## SELECTED ANCILLARY DATA FOR UNDISCOVERED FIELDS

(variations in the properties of undiscovered fields)

| Oil Fields: | minimum | median | maximum |
|---|---|---|---|
| API gravity (degrees)…… | 30 | 40 | 50 |
| Sulfur content of oil (%)…… | 0 | 0.1 | 0.3 |
| Drilling Depth (m) …… | 2000 | 3000 | 4000 |
| Depth (m) of water (if applicable)…… | | | |

| Gas Fields: | minimum | median | maximum |
|---|---|---|---|
| Inert gas content (%)…… | 2 | 4 | 6 |
| $CO_2$ content (%)…… | 0.1 | 0.2 | 0.4 |
| Hydrogen-sulfide content (%)…… | 0 | 0 | 0 |
| Drilling Depth (m)…… | 2000 | 3000 | 4000 |
| Depth (m) of water (if applicable)…… | | | |

Assessment Unit (name, no.)
Yenisey Foldbelt Riphean-Craton Margin Riphean, 12070101

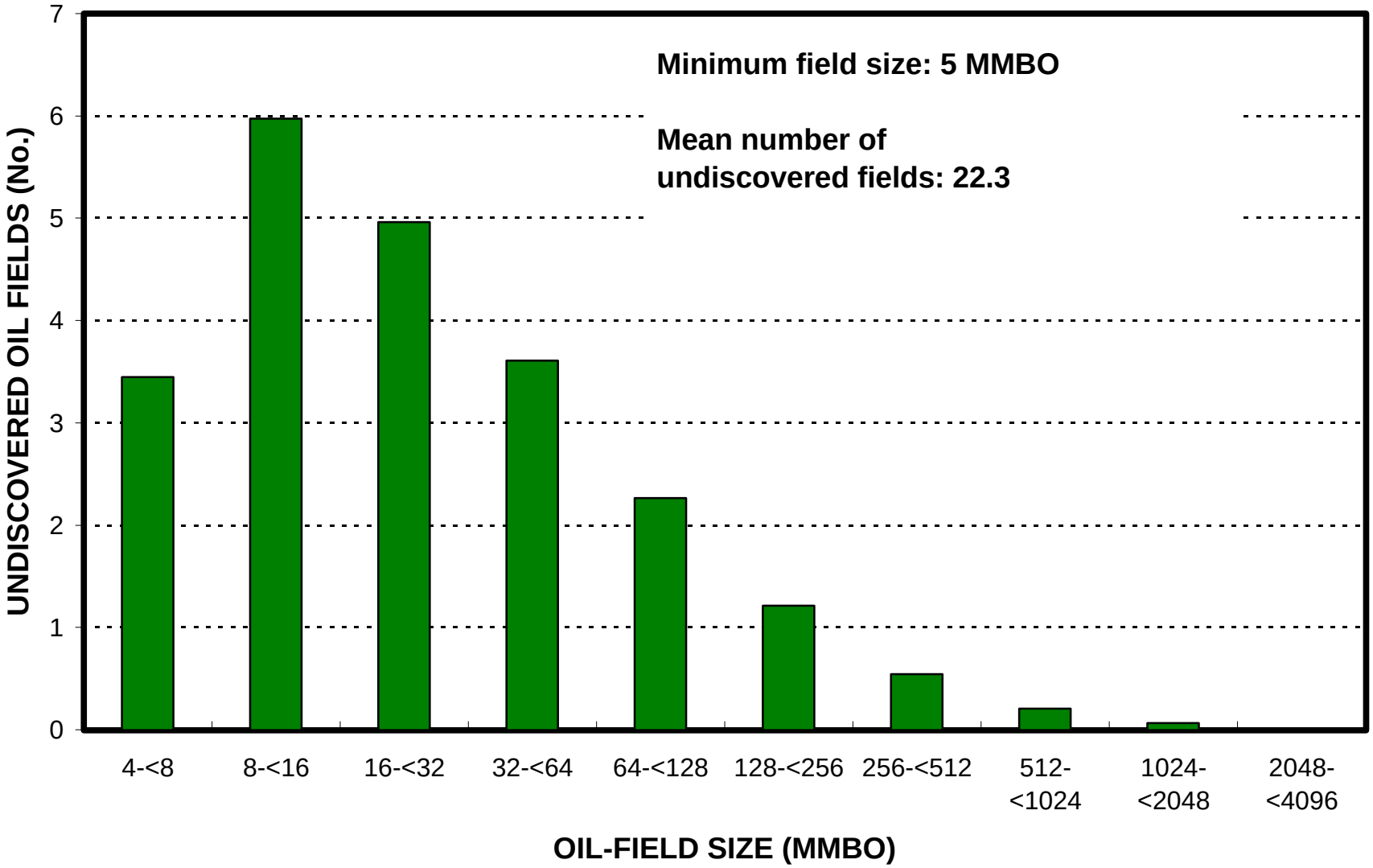
**ALLOCATION OF UNDISCOVERED RESOURCES IN THE ASSESSMENT UNIT TO COUNTRIES OR OTHER LAND PARCELS** (uncertainty of fixed but unknown values)

1. Russia represents 100 areal % of the total assessment unit

| Oil in Oil Fields: | minimum | median | maximum |
|---|---|---|---|
| Richness factor (unitless multiplier):…… | | | |
| Volume % in parcel (areal % x richness factor):… | | 100 | |
| Portion of volume % that is offshore (0-100%)…… | | 0 | |

| Gas in Gas Fields: | minimum | median | maximum |
|---|---|---|---|
| Richness factor (unitless multiplier):…… | | | |
| Volume % in parcel (areal % x richness factor):… | | 100 | |
| Portion of volume % that is offshore (0-100%)…… | | 0 | |

# Yenisey Foldbelt Riphean-Craton Margin Riphean, AU 12070101
## Undiscovered Field-Size Distribution



# Yenisey Foldbelt Riphean-Craton Margin Riphean, AU 12070101
## Undiscovered Field-Size Distribution